DOCUMENT RESUME

ED 453 016 RC 022 958

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TITLE The Multi-Faceted Structure of School Achievement Motivation: A Case for Social Goals.
PUB DATE 2001-04-00
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (Seattle, WA, April 10-14, 2001).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; *Academic Aspiration; Achievement Need; American Indians; Aspiration; *Cultural Differences; Goal Orientation; *High School Students; High Schools; Navajo (Nation); School Culture; Sex Differences; *Student Motivation; Student Surveys
IDENTIFIERS *American Indian Students

ABSTRACT

One reason proposed for the persistent school underachievement of Navajo students is that school culture is based largely on individualism, interpersonal competition, and other Western norms and values that may be an anathema to Native Americans. Hence, school culture may predispose them to failure. Drawing on Western concepts of achievement motivation, this paper examines school achievement motivation similarities and differences between nontraditional and near-traditional Navajo high school students. A survey of 829 Navajo students in grades 9-12 examined the relationships among nontraditional factors (speak English, live in town); near-traditional factors (speak Navajo, live in rural areas); gender; social goals (approval, concern); and achievement goals (mastery, approach, avoidance). English speakers scored higher than Navajo speakers for concern; rural students scored higher than town students for approval; while females scored higher than males for concern. Males scored higher than females for approach and for avoidance. There were no other significant differences. The relations of language and gender to mastery were completely mediated by concern, while the relations of rural/urban location to approach were completely mediated by approval. It was concluded that nontraditional and near-traditional Navajo students are more similar than dissimilar and that Navajo high school students' social goals play an important role in their achievement goals. Four appendices present survey items and statistical tables. (Contains 46 references.) (TD)

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ED 453 016

The Multi-faceted Structure of School Achievement Motivation: A Case for Social Goals

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Paper presented at the
82nd Annual Meeting of the American Educational Research Association
Seattle April 10-14 2001

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ABSTRACT

Among the many reasons that are proposed for the persistent school underachievement of Navajo students is, that school culture is based largely on individualism, interpersonal competition, and other Western norms and values, that may be an anathema to Native Americans. Hence, school culture may predispose them to failure. Drawing on Western concepts of achievement motivation we examine school achievement motivation similarities and dissimilarities between non-traditional and near traditional Navajo high school students. Navajo students (N=829) from years 9, 10, 11, & 12 and 2 high schools (n=300 & n=529) participated in the survey. There were 391 males and 422 females, 243 students spoke Navajo at home and 557 spoke English at home, and 469 lived in towns and 329 in rural areas. Using Structural Equation Modeling (SEM) the relationships of non-traditional (speak English, live in town) and female, and near traditional (speak Navajo, live in rural areas,) and male factors, social goals (approval, concern), and achievement goals (mastery, approach, avoidance) were examined. English speakers scored higher than Navajo speakers for concern, rural living students scored higher than town students for approval, while females scored higher than males for concern. Males scored higher than females for approach and for avoidance. There were no other significant differences. The relations of language and gender on mastery were completely mediated by concern, while the relations of location on approach were completely mediated by approval. We concluded that non-traditional and near traditional Navajo students are more similar than dissimilar and that Navajo high school students' social goals play an important role in the achievement goals they emphasize..

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INTRODUCTION

In the past decade considerable progress has been made in investigating the role of social goals in students' achievement motivation (e.g. Anderman & Anderman, 1999; Blumenfeld, 1992; McInerney, Roche, McInerney, & Marsh, 1997; Urdan & Maehr, 1995; Urdan, 1997). Yet, there is little reported concerning the relationship of social and achievement goals for Navajo high school students. In the United States there is persistent school underachievement among Native American students (e.g. James, Chavez, Beauvais, Edwards, & Oetting, 1995; Vadas, 1995; Pavel, Curtin, & Whitener, 1997). This is great cause for concern and has led many researchers to investigate the potential causes. Among the many potential causes cited in the literature is students' cultural identity. The cultural identity hypothesis posits that Native American culture contrasts with the culture of schools to such an extent that Native American students are disadvantaged. School culture, it is argued, is based largely on individualism, interpersonal competition and other Western norms and values (Deyhle, 1995; Deyhle & Swisher, 1997; James, et al, 1995) which may be the anathema of Native Americans and particularly Native American women (James, et al, 1995). Thus for example, it has been suggested that group-based and cooperative forms of education may be more effective for Native Americans than the individualistic competitive approaches found in American schools (e.g. Ledlow, 1992; Vadas, 1995).

Our research with Navajo students is grounded in achievement goal theory. Pavel and Padilla (1993) recommend that researchers use mainstream theories when investigating school achievement among Native Americans. Such an approach, they argue, builds not only on theory but also may result in a better understanding of Native American students' school achievement. While there is a considerable body of theory and research concerning school achievement motivation much of this research has been conducted in mainstream schools (e.g. Murphy & Alexander, 2000). There has been far less theory and research concerning minority groups, and particularly minority groups who relatively underachieve at school.

Achievement goal theory assumes students' perceptions of the goal structures emphasized by schools, teachers and parents are reflected in the achievement goals students adopt in the classroom (e.g. Anderman & Anderman, 1999; Anderman & Maehr, 1994). The two most common goals emphasized in achievement goal theory are mastery and performance goals. It is believed that when students emphasize a mastery goal they are focused on learning, self-improvement, and effort. It is believed that when students emphasize a performance goal they are concerned to demonstrate their ability relative to others (e.g. Ames and Archer, 1988).

Recently, there has been a sharper focus on the structure of the concept of achievement motivation. This has manifest itself in a variety of approaches to the phenomenon. For example, some view the structure of achievement motivation in terms of a hierarchical structure (e.g. Marsh, Craven,

McInerney, 2000; McInerney, Yeung, McInerney, 2000). Other theorists favor a multi-faceted approach. Here the focus is on the interrelations of dimensions (e.g. Pintrich, 2000, McInerney, Hinkley, Dowson, & Van Etten, 1998; Urdan & Maehr, 1995). Importantly for the present research, Pintrich (2000) advocates the examination of moderating and mediating effects to understand better the nature of school achievement motivation. In addition, in order to explain better disparate findings concerning performance goals, researchers have partitioned the performance goal into a performance approach goal and a performance avoidance goal (e.g. Elliott & Church, 1997; Midgley, Kaplan, Middleton, Maehr, Urdan, Anderman, Anderman, & Roeser 1998). A performance approach goal can be seen as students wanting to appear more able than others and a performance avoidance goal as students wanting not to appear less able than others (Urdan, 1997). There has also been a concern to explicate the relationships between mastery goals, performance approach goals, and performance avoidance goals (e.g. McInerney, et al, 2000; Midgley, et al, 1998).

NAVAJO STUDENTS' SCHOOL ACHIEVEMENT

Vadas (1995) and Platero, Brant, Witherspoon, & Wong (1988) report that among school underachievers and dropouts, Navajo male students are disproportionately represented compared to females. In addition, like Platero, et al (1988), Vadas (1995) reports, student dropout profiles tended to be male "...more traditional, have less materialistic ambition, live in the more remote parts of the reservation, and have parents who speak only Navajo." Vadas (1995) posits cultural factors as the explanation for these results. This suggests that non-traditional Navajo students (speak English at home, live in towns), and females are more likely than near traditional Navajo school students (speak Navajo at home, live in rural areas) and males to adopt individualistic mastery and performance goals emphasized by schools..

However, establishing that there are non-traditional and near traditional differences, or that these socio-cultural indicators are reliable predictors of school achievement motivation seems an insufficient explanation. We are left with the question of why should speaking Navajo or English at home or, living in a town or rural location or of being male or female have a bearing on school achievement motivation. We might like to postulate a mediator that transcends factors. For example, we could postulate that being female is a better predictor of school achievement motivation because females are more socially concerned than are males. The concern of our paper is to look more closely of the relations of these non-traditional and near traditional factors for Navajo high school students achievement motivation mediated by their social goals.

The Role of Social Goals

Recently, Anderman and Anderman (1999) described linkages between students' social goals and their achievement goals. They hypothesized that particular social goals are related to mastery goals and different social goals are related to performance goals. They found that social responsibility goals are related to mastery and that social goals that emphasize peer relationships and status are related to performance goals. They further point out that social goals are related to students' achievement (see also Triandis, 1995). Hence, they hypothesize that the relations of students' social goals with achievement may be meditated by particular achievement goals (see also, Urdan & Maehr, 1995). Thus, they assume causal relations between students' social goals and their achievement goals. This position is adopted in the present research in which the social goals of interest are social approval and social concern.

A social approval goal.

One social goal examined in the present research is social approval. Social approval is seen as a goal in which students seek recognition (praise) from teachers and peers for schoolwork. However, social approval may have negative consequences for valued academic outcomes (Urdan & Maehr, 1995). Deyhle (1995), for example, posits that the Navajo students see valued academic outcomes based upon individual striving as an anathema to being Navajo. In such circumstances, social approval may have as its consequence the maintenance of group/social/cultural identity. Hence, Navajo high school students may not academically engage in deference to being socially acceptable.

A social concern goal.

The central characteristic of a social concern goal is that students act out of empathy for the interests of other students. Social concern is an inclusive construct the properties of which are cooperation and collectivism (Ames, 1992; Triandis, 1995; Urdan & Maehr, 1995). The value of cooperative learning structures has long been known (e.g. Triandis, 1995; Slavin, 1983; Urdan & Maehr, 1995). Co-operative learning processes have been shown to moderate the effects of failure more so than competitive learning processes (Harris & Covington, 1993). Social concern goals would seem to relate more strongly to mastery goals than to performance approach or performance avoidance goals (e.g. Anderman & Anderman, 1999). With respect to social concern, it is reported that the Navajo value co-operative behavior. Further that this co-operative behavior extends to the school environment (Deyhle, 1995; Deyhle & Swisher, 1997).

Gender and Social Goals

Research suggests that females endorse relationship and responsibility goals more than males do (e.g. Patrick, Hicks, & Ryan, 1997) and males endorse status goals more than females do (e.g. Ryan, Hicks, & Midgley, 1997). Anderman and Anderman (1999) report findings consistent with this. However, they go on to add that they found no difference in the indirect effects of gender on student achievement goals. While there is reported research concerning gender differences related to students' achievement goals and social goals there appears little research that explores similar issues for Navajo high school students. The present research addresses this gap in our knowledge.

Navajo Students and Social Goals

The question of the relationships of Navajo high school students social goals with their achievement goals has not before been examined in detail (e.g. McInerney & Swisher, 1995). Clearly, the role of Navajo student's social goals in a school context is an important consideration. The question also arises whether Navajo high school students perceive social goals and their relations with school achievement goals in a similar way as did the participants in the Anderman and Anderman (1999) study. Deyhle (1995) and Deyhle & Swisher (1997) reports seem to suggest that they do not. Generally, we expect non-traditional Navajo high school students to be more socialized to school than near traditional Navajo high school students (e.g. Vadas, 1995).

Research Questions Addressed in this Study

The specific research questions addressed in this study are:

1. Are there non-traditional and near traditional differences in terms of Navajo students' social goals?
2. Are there non-traditional and near traditional differences in terms of Navajo students' achievement goals?
3. Are the relations of language, location, and gender on the three achievement goals mediated by social goals?

METHOD

PARTICIPANTS

Students from Kayenta High School (n=300) and Window Rock High School (n=529) participated in the survey. All students in years 9, 10, 11, and 12 participated in the data collection (year 9, n=303; year 10, n= 187; year 11, n = 164 year 12, n=160; and, missing n = 16). Four hundred and sixty nine students reported that they lived in a town and 329 that they lived in rural areas in the Navajo Nation. Five hundred and fifty seven students described themselves as speaking English at home and 243 described themselves as speaking Navajo at home.

ADMINISTRATION

Parental authorizations were gained before administering the survey and students were informed that the survey was voluntary. Teachers administered the survey in the classroom during scheduled English classes. Before the administration of the survey, the second author trained the teachers in the administration of the survey instrument. Each survey session began with a standard explanation of the purpose of the survey and a request for the support from the students in completing the survey accurately. Students then responded to the items. The survey took approximately 50 minutes to complete. In general, the response rate was excellent and the students' approach was enthusiastic.

On completion of the survey, the forms were checked for accuracy and completion immediately following administration.

INSTRUMENTATION

Inventory of School Motivation (ISM). The ISM was developed by McInerney (1988) and McInerney and Sinclair (1992) and subsequently validated by McInerney and Swisher (1995) and again by McInerney, Roche, McInerney, and Marsh (1997). The instrument was developed to reflect the dimensions hypothesized by Maehr's personal investment (or motivation) theory (Maehr, 1984; Maehr & Braskamp, 1986) in a school context. All the items used a 5-point Likert-type rating scale (1=strongly agree to 5=strongly disagree). For the purpose of statistical analyses these scales were reverse coded. For the present research, relevant items only are selected.

We drew thirty-seven items from the ISM. These items operationalize the constructs relevant to the present research. Appendix A presents the items. In the statistical analysis section that follows, we briefly describe the procedures adopted to test for the internal consistency and unidimensionality of the scales.

SOCIO-CULTURAL FACTORS

The socio-cultural factors operationalized in the present research are language spoken at home (Navajo = 0, English = 1), living location we operationalized as town (0) and rural (1), and gender we operationalized as male (0) and female (1).

STATISTICAL ANALYSIS

To compile the descriptive statistics and standardize the data we used SPSS V6.3 (Norusis/SPSS Inc., 1993). We base the statistical inferences on Structural Equation Modeling (SEM) LISREL 8.3 (Jöreskog & Sörbom, 1996a) and Prelis 2.3 (Jöreskog, & Sörbom, 1996b).

THE STATISTICAL STRATEGY USED IN THE PRESENT RESEARCH

The strategy employed in the present research consists of two parts. The first part was completed as part of an ongoing research program and we briefly report in this section relevant parts of that research. The second part is reported in the following results section. The means and standard deviations for the factors used in this paper are presented in Appendix B.

In earlier unpublished research we evaluated the psychometric properties of the scales making use of estimates of internal consistency (Cronbach's Alpha) and one-factor Confirmatory Factor Analysis (CFA). In addition, using CFA's we validated the structure of a 13-factor model of school achievement motivation. Further, we conducted independent tests for the structural invariance of the model for each of the language, location, and gender variables. Readers should note that the mastery factor is a composite of two factors collapsed before the preparation of this paper. The collapsed factors were mastery and utility.

Cronbach's alpha results for the social and the achievement goal factors were considered moderate and acceptable. They range from 0.55 to 0.81 with a mean of 0.70. Two Cronbach's Alphas are less than 0.70. The factor avoidance has the lowest Cronbach's Alpha (0.55). However, this factor comprises 3 items only and perhaps this contributes to the low result. Many researchers consider that Cronbach's Alpha has a general tendency to underestimate reliability (e.g. Raykov, 1997). Nonetheless, given these results the over riding consideration is the usefulness of the factor in the model under consideration. In the present research, we considered the factors useful in describing school achievement motivation among Navajo high school students. The NNFI for the motivational scales ranged from 0.97 to 1.01 (not including the avoidance scale) with a mean of 0.998. We then conducted a CFA to determine if our hypothesized 13-factor model fitted the data. The NNFI for this model was 0.90. The results of the tests of invariance in which we progressively constrained the factor loadings,

the factor variances and factor covariances, and the item residual variances as equivalent as recommended by Jöreskog & Sörbom (1996a), were all invariant. The solutions for these tests can be found in Appendix C. We present the correlation matrix for this hypothesized 13-factor model of school achievement motivation as Appendix D.

On establishing the structural validity of the hypothesized model of school achievement motivation, we proceeded to examine the data in terms of the specific research questions reported in the following results section. In this part of the investigation, we make use of a mediation model of school achievement motivation. We emphasize the language, location and gender variables, the two social goals (social approval & social concern) and the three achievement goals (mastery, performance approach, & performance avoidance). Figure 1 depicts the hypothesized relations between these factors. In the following, we briefly summarize the notion of a mediation model.

Insert Figure 1 about here

THE MEDIATION MODEL.

According to Baron and Kenny (1986), to evaluate the mediation effects of intervening variables, the usefulness of ANOVA is limited because not all paths are tested and multiple regression is limited because measurement error is not controlled for and this may produce results that mislead. Instead, they recommend the use of SEM methodology. The present research heeds this advice.

Using SEM methodology, we present in Figure 2 two path diagrams. Figure 2a depicts the mediation model. There are three possible outcomes. First, there are no mediation effects, with at least path "b" or "c" non-significant. Second, there is a complete mediation effect. In a model where there is complete mediation path "a" is non-significant and paths "b" and "c" are significant. Third, there is a partial mediation effect when the paths "a", "b" and "c" are all significant.

Examination of the relations of some factors is beyond the scope of the present research. Clearly the relations of, for example, social approval on social concern is of theoretical and empirical interest. However, the immediate task is to examine the relations in terms of the hypothesized model. That is, the socio-cultural variables, social goals and achievement goals. The interrelations of factors other than these are the subject of future reports. Figure 2b represents such a situation in the present report. In this figure both approval and concern are assumed to directly effect the achievement goals (e.g. Anderman & Anderman, 1999) and the effects are depicted by paths "b" and "c". However, we do not posit a path between approval and concern. The relations of these two factors we leave as a correlation depicted by "a" in figure 2b. We control for this correlation, and other factors in the model, by partialling out their effects (Pedhazur, 1997).

Insert Figure 2 about here

To guide the analyses the following hypotheses are used:

1) Students' social goals. According to Deyhle (1995) Navajo and Ute cooperative social values are in conflict with the individualistic values emphasized by schools (see also Locke, 1992). Hence, it is hypothesized that non-traditional (English speakers, live in town), and female Navajo students will score higher than near traditional (Navajo speakers, live in rural areas), and male Navajo students on the social goal factors.

2) Students' achievement goals. Platero, et al (1988) and Vadas (1995) report that Native American student underachievers and dropout characteristics tend to be male "...more traditional, have less materialistic ambition, live in the more remote parts of the reservation, and have parents who speak only Navajo." Vadas (1995) posits cultural factors as the explanation for these results. Hence it is hypothesized that non-traditional Navajo students will score higher than near traditional Navajo students on the achievement goals.

3) Indirect effects of the socio-cultural variables.

In the following hypotheses, we follow Anderman and Anderman (1999) concerning the relations of the two social goal factors with the three achievement goal factors. However, we adhere to the concepts of non-traditional and near traditional concerning the language, location, and gender effects on the three achievement goal factors mediated the two social goal factors. See Figure 3 for a diagrammatic presentation of these relations.

Insert Figure 3 about here.

a) It is hypothesized that the social approval factor will mediate the effects of language, location, and gender on the performance approach and performance avoidance factors only (see Anderman & Anderman, 1999). Further, these effects will be greater for English speakers, students living in towns and females (non-traditional) than for Navajo speakers, students living in rural areas, and males (near traditional).

b) It is hypothesized that the social concern factor will mediate the effects of language, location, and gender on mastery only (see Anderman & Anderman, 1999). Further, these effects will be greater for English speakers, students living in towns and females (non-traditional) than for Navajo speakers, students living in rural areas, and males (near traditional).

RESULTS

Turning to the substantive issues of concern in the present paper, we present the results of the analyses of the data in two sub-sections. The first of these sub-sections presents the results in terms of hypotheses 1 and 2. We present these in terms of the direct effects (see Table 2). The second sub-section presents the results in terms of hypotheses 3. To address this hypothesis the mediation model is analyzed emphasizing the indirect and direct effects (see Tables 2 & 3).

We begin by presenting the significant differences in the hypothesized model of school achievement motivation in terms of language, location, and gender for the social goal factors and achievement goal factors.

THE RESULTS FOR HYPOTHESIS 1: NON-TRADITIONAL NAVAJO STUDENTS WILL SCORE HIGHER THAN NEAR TRADITIONAL NAVAJO STUDENTS ON THE SOCIAL GOAL FACTORS.

There is some support for hypothesis 1 (see Table 2). In terms of support for this hypothesis English speakers (non-traditional) scored higher than Navajo speakers (near traditional) on social concern with a path coefficient of 0.14, $p < 0.01$. In addition, females (non-traditional) scored higher than males (near traditional) on concern with a path coefficient of 0.29, $p < 0.01$. In terms of non-support for hypothesis 1, Navajo students living in rural areas (near traditional) scored higher than Navajo students living in town (non-traditional) on social approval with a path coefficient of 0.14, $p < 0.01$. This is contrary to hypothesis 1. Finally, there are no differences between English and Navajo speakers for approval, between students living in town and rural areas for concern and between male and females for approval. These findings also do not support hypothesis 1.

HYPOTHESIS 2: NON-TRADITIONAL NAVAJO STUDENTS WILL SCORE HIGHER THAN NEAR TRADITIONAL NAVAJO STUDENTS ON THE ACHIEVEMENT GOAL FACTORS.

There was no support for hypothesis 2 (see Table 2). There were no differences between English and Navajo speakers, or between Navajo students living in town and those living in rural areas for any of the achievement goals. In addition, there were no differences between males and females for the mastery factor. This finding does not support hypothesis 2. Finally, males scored higher than females on the approach factor with a path coefficient of -0.38, $p < 0.1$ and on the avoidance factor with a path coefficient of -0.27, $p < 0.1$. These finding are contrary to hypothesis 2.

Insert Table 2 about here.

RESULTS FOR HYPOTHESIS 3. THE EFFECTS OF LANGUAGE, LOCATION AND GENDER ON THE ACHIEVEMENT GOALS MEDIATED BY THE SOCIAL GOALS.

The reader should note that the results reported in this paper are part of a larger research project. As such, there are multiple indirect paths between the independent variables (language, location, & gender) and the dependent variables (achievement goals). Hence, although Table 3 shows indirect effects, for example, of language on approach the mediator for this path is the subject of future reports. The focus of this paper is on the social goals only as mediating factors. The effects of factors not reported in this paper have all been controlled for.

a) Effects of language, location, and gender on the performance approach and performance avoidance factors mediated by the social approval factor. The effects of location on approach are completely mediated by the social approval factor with a path coefficient from location to approval of 0.14, $p < 0.01$ and from approval to approach of 0.62, $p < 0.01$ (see Tables 2 & 3). This result offers support for the location hypothesis 3a. However, the effects are greater for rural students (near traditional) than for town students (non-traditional). This result is contrary to the location hypothesis 3a. There is no support for the hypotheses that the effects of language and gender on the performance approach and performance avoidance factors will be mediated by the social approval factor.

b) Effects of language, location, and gender on the achievement goal factors mediated by the social concern factor. The effects of language on mastery are completely mediated by social concern factor with a path coefficient from language to concern of 0.14, $p < 0.01$ and from concern to mastery with a path coefficient of 0.16, $p < 0.01$ (see Tables 2 & 3). In addition, the effects are greater for English speakers (non-traditional) than for Navajo speakers (near traditional). This result offers support for the language hypothesis 3b. The effects of gender on mastery are completely mediated by social concern with a path coefficient from gender to concern of 0.29, $p < 0.01$ and from concern to mastery with a path coefficient of 0.16, $p < 0.01$ (see Tables 2 & 3). In addition, the effects are greater for females than for males .This result offers support for the gender hypothesis 3b. Finally, there is no support for the hypothesis that the effects of location on the mastery factor will be mediated by the social concern factor.

Insert Table 3 about here.

DISCUSSION AND CONCLUSION

The results presented in this paper add to the literature concerning Navajo high school students' school achievement motivation from the perspective of comparing non-traditional with near traditional

students. The results suggest that although there are differences between non-traditional and near traditional Navajo students, it is perhaps more accurate to say that the groups are more similar than dissimilar. Clearly this raises concerns regarding the making of policy based on assumptions regarding presumed differences between non-traditional and near traditional Navajo high school students. Similarly, there are implications for teachers who too readily assume differences in achievement motivation characteristics between these two groups.

Of interest in this paper are the similarities and dissimilarities between the findings reported in this paper and those concerning mainstream schools. For example, in our research there are no gender differences concerning the social approval goal. Yet, Anderman and Alderman (1999) reported gender differences with males more likely than females to emphasize this goal. However, the findings concerning the social concern goal were consistent with those of Anderman and Anderman (1999) with females more likely than males to emphasize social concern. Further, like Anderman and Anderman (1999), males were more likely than females to emphasize an approach goal and there were no gender differences concerning the mastery goal. Notwithstanding that Anderman and Anderman (1999) evaluated 5th and 6th grade students whereas our study was concerned with high school students, there is remarkable similarity of achievement characteristics between the two studies. Further weight is added to this position when consideration is given to the finding that there were no language or location differences for the mastery and performance approach and avoidance factors. Indeed, despite the finding of significant differences for language on concern and for location on approval, the mean differences are comparatively small (see Appendix B.) suggesting that the differences may not be of practical significance.

The findings also add to the literature generally in terms of the relations of social goals with students' school achievement goals. Anderman and Anderman (1999) found that students perceive different social goals as related to qualitatively different goal orientations (achievement goals). In the present paper, after controlling for the other factors in the model, the results suggest direct relations between social concern and a mastery goal and between social approval and an approach goal. These findings are consistent with previous research (e.g. Anderman & Anderman, 1999). We interpret this finding as suggesting that the relations of students' social goals with their school achievement goals may be similar across cultural divides.

An interesting finding was that the relationship of social approval factor and the performance avoidance factor. We had expected a negative relationship and instead we found a positive relationship. One interpretation of this finding is that students who are low on avoidance have little concern for social approval. Another interpretation may be that students who are avoidance oriented in the face of praise for good work become more avoidance oriented. That is, they adopt a "rest on one's laurels attitude" to

avoid future embarrassment from appearing unable. In either event, the finding is interesting and warrants further exploration that is beyond the scope of the present research.

Concerning the relations of language, location, and gender on the achievement goals mediated by the social goal factors we found that the relations of language and gender on mastery were completely mediated by the social concern factor. In addition, the relations of location on approach was completely mediated by the social approval factor. In the absence of direct relations of language, location, or gender groups on the achievement goals, these mediation effects highlight the importance of Navajo high school students' social goals. Hence we suggest that Navajo high school students' social goals are an important influence on the school achievement goals they emphasize. Further research linking these results with Navajo high school students' ability beliefs and achievement values (e.g. Pintrich, 2000) would be useful to understand better the complex nature of school achievement motivation among Navajo high school students.

This paper also demonstrates, first, the utility of Pavel and Padilla (1993) position that there is much to be gained by using mainstream models to understand better, education and school achievement motivation among Native American students. Second, it supports Pintrich (2000) advocacy for the use of a mediation model to understand better achievement motivation.

CONCLUSION

It is clear from the findings that a simple contrasting of Navajo high school students' achievement motivation on cultural lines is insufficient to explain Navajo student's academic achievement and school achievement motivation. Clearly there are subtleties at work that require further research to better understand why Navajo students relatively underachieve at school compared to the general population, and why some students, irrespective of how close they are to their Navajo traditions, do well at school while others do relatively poorly.

FIGURE 1. HYPOTHESIZED MODEL OF SCHOOL ACHIEVEMENT MOTIVATION INCORPORATING LANGUAGE, LOCATION, AND GENDER, THE TWO SOCIAL GOALS, AND THE THREE ACHIEVEMENT GOALS.

FIGURE 2. THE MEDIATION MODEL: CONCEPTUAL DIAGRAMS

Figure 2a

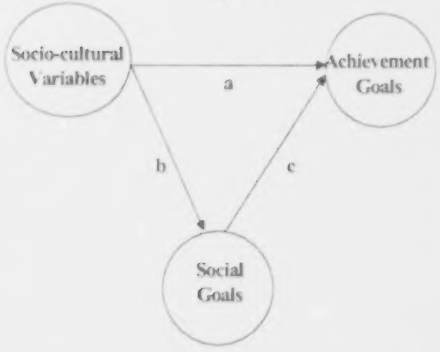

Figure 2b

FIGURE 3. HYPOTHESIZED RELATIONS BETWEEN THE SOCIO-CULTURAL VARIABLES, THE SOCIAL GOALS, AND THE ACHIEVEMENT GOALS.

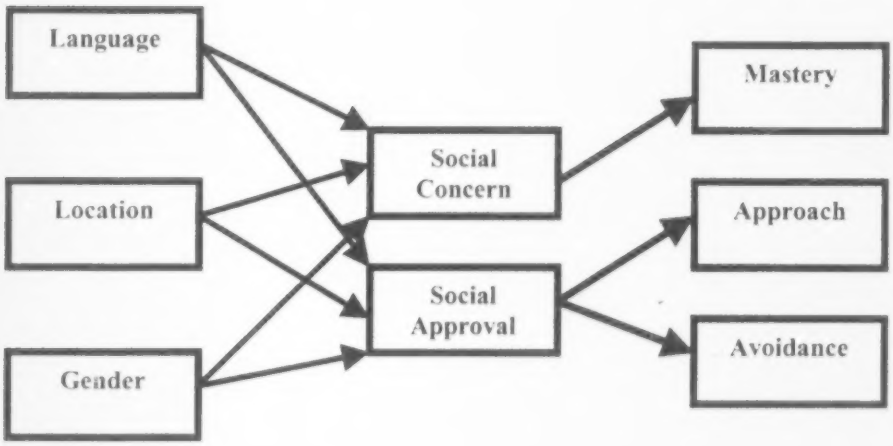

TABLE 2. STANDARDIZED DIRECT EFFECTS OF LANGUAGE, LOCATION, AND GENDER TWO SOCIAL GOAL FACTORS AND THE ON THE THREE ACHIEVEMENT GOAL FACTORS.

	Language	Location	Gender	Approval	Concern
Approval	NS	0.14**	NS	- -	- -
Concern	0.14**	NS	0.29**	- -	- -
Mastery	NS	NS	NS	NS	0.16**
Approach	NS	NS	-0.38**	0.64**	NS
Avoidance	NS	NS	-0.27**	NS	NS

Note: ** = $p < 0.01$
* = $p < 0.05$

TABLE 3. STANDARDIZED INDIRECT EFFECTS OF LANGUAGE, LOCATION, AND GENDER ON THE THREE ACHIEVEMENT GOAL FACTORS.

	Language	Location	Gender
Mastery	0.13**	NS	0.15**
Approach	0.08**	0.08*	NS
Avoidance	NS	NS	0.09*

Note: ** = $p < 0.01$
* = $p < 0.05$

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Appendix A. List of Items Used in the Present Research.

Mastery (Mastery) Scale (4 Items).

B33 I like to see that I am improving in my schoolwork.
B40 I work hard to try to understand something new at school.
B56 When I am improving in my schoolwork I try even harder.
B89 I am always trying to do better in my schoolwork.
B22 I want to do well at school so that I can have a good future.
B38 I aim my schooling towards getting a good job.
B48 I try hard to do well at school so that I can get a good job when I leave.
B54 It is good to plan ahead to complete my schooling.

Performance Approach (Approach) Scale (4 Items).

B1 I want to be better at class work than my classmates.
B2 Winning is important to me.
B14 I am happy only when I am one of the best in class.
B76 I work harder if I am trying to be better than others.

Performance Avoidance (Avoidance) Scale (3 Items).

B80 Trying hard at school is not much fun if the competition is too strong.
B95 I only like to do things at school that I am confident at.
B98 I always chose easy work at school so that I don't have too much trouble.

Social Approval (Approval) Scale (5 Items).

B17 Praise from my teachers for my schoolwork is important to me.
B23 Praise from my friends for my schoolwork is important to me.
B41 At school I work best when I am praised for my school work.
B73 I want to be praised for my schoolwork.

Social Concern (Concern) Scale (5 Items).

B10 It is very important for students to help each other at school.
B21 I like to help other students do well at school.
B29 I care about other people at school.
B35 I like working with other people at school.
B46 I enjoy helping others with their schoolwork even if I don't do so well myself.

Appendix B. Mean Values and Standard Deviations of Motivational Scales by Language, Location, and Gender.

Factor	Sex		Language		Location			Chronbach's
	M	F	Navajo	English	Town	Rural	Single Group	Alpha
Mastery	4.15(.61)	4.28(.54)	4.15(.66)	4.25(.54)	4.24(.56)	4.19(.59)	4.22(.58)	0.73
Approach	3.56(.79)	3.29(.74)	3.39(.77)	3.43(.79)	3.42(.78)	3.42(.78)	3.42(.78)	0.66
Avoidance	3.06(.80)	2.93(.85)	3.00(.78)	2.99(.85)	2.92(.85)	3.07(.80)	2.99(.83)	0.55
Approval	3.26(.78)	3.33(.82)	3.25(.78)	3.30(.82)	3.25(.84)	3.33(.77)	3.29(.81)	0.81
Concern	3.77(.64)	4.06(.53)	3.85(.62)	3.96(.58)	3.93(.62)	3.90(.43)	3.93(.60)	0.77

Note: Standard Deviations are enclosed in brackets ()

APPENDIX C. FIT INDICES FOR THE SOLUTIONS OF THE 13-FACTOR MODEL INVARIANT FACTOR LOADINGS

Model	Chi	df	NNFI	CFI	RMSEA	Comments
M23 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	
M24 13-factor model factor loadings - Language	1779.32	1457	0.94	0.94	0.024(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 14.58 Δdf = 29 NS
M25 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M26 13-factor model factor loadings - Location	1643.24	1457	0.96	0.97	0.019(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 7.51 Δdf = 29 NS
M27 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M28 13-factor model factor loadings - Gender	1706.55	1457	0.95	0.95	0.020(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 13.03 Δdf = 29 NS
M29 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	
M30 13-factor model factor correlations - Language	1826.97	1535	0.94	0.95	0.023(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 62.13 Δdf = 107 NS
M31 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M32 13-factor model factor correlations - Location	1665.11	1535	0.97	0.98	0.014(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 29.38 Δdf = 107 NS
M33 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M34 13-factor model factor correlations - Gender	1738.53	1535	0.96	0.96	0.017(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 45.01 Δdf = 107 NS
M35 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	
M36 13-factor model factor residual variance - Lan	1859.61	1575	0.95	0.95	0.022(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 94.77 Δdf = 147 NS
M36 13-factor model factor residual variance - Lan	1859.61	1575	0.95	0.95	0.022(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 94.77 Δdf = 147 NS
M37 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M38 13-factor model factor residual variance - Loc	1680.21	1575	0.98	0.98	0.012(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 44.48 Δdf = 147 NS
M39 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M40 13-factor model factor residual variance - Gen	1757.05	1575	0.96	0.97	0.015(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 63.53 Δdf = 147 NS

Note: [a] – P-Value for Test of Close Fit

APPENDIX D. FACTOR CORRELATIONS FOR THE 13-FACTOR MODEL – MASTERY AND UTILITY COLLAPSED INTO A SINGLE FACTOR

	Language	Location	Gender	Absence	GPA	Persval
Language	1.00					
Location	-0.26**	1.00				
Gender	-0.09*	0.01	1.00			
Absence	-0.14**	0.02	0.07	1.00		
GPA	0.08	-0.11**	0.14**	-0.41**	1.00	
Persval	0.07	-0.03	0.12**	0.00	0.07	1.00
Sure	0.08	-0.04	-0.04	-0.27**	0.32**	0.26**
Unsure	0.06	0.01	0.21**	0.18**	-0.25**	0.06
Approval	0.05	0.12**	0.07	-0.04	-0.02	0.14**
Concern	0.15**	0.00	0.32**	-0.07	0.18**	0.42**
Mastery	0.18**	-0.06	0.13**	-0.11**	0.24**	0.48**
Approach	0.05	0.04	-0.31**	-0.06	0.01	0.17**
Avoidance	-0.04	0.11*	-0.18**	0.15**	-0.36**	-0.05

	Sure	Unsure	Approval	Concern	Mastery	Approach
Sure	1.00					
Unsure	-0.47**	1.00				
Approval	0.30**	0.19**	1.00			
Concern	0.39**	-0.01	0.33**	1.00		
Mastery	0.64**	0.06	0.41**	0.54**	1.00	
Approach	0.30**	0.07	0.65**	0.14**	0.38**	1.00
Avoidance	-0.33**	0.55**	0.20**	-0.12*	-0.21**	0.13*

	Avoidance
Avoidance	1.00

Note: ** = $P < 0.01$
* = $P < 0.05$

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